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12 August 1958

MEMORANDUM FOR THE RECORD

SUBJECT: The Direction of Balloon R&D During the Period 1955-1958

1. Research and development in support of [redacted] type balloon operations has been directed primarily to expand the operational capability of operations by providing new equipment. The shroud launching device allows greater freedom of choice of surface wind conditions for launching. The step out systems was provided with drogue parachute and automatic ballaster to insure that the infiltrator would not have to bury his equipment. High altitude flights were made and data recorded to enable personnel flights to go to altitudes as high as 30,000 feet. A small aircraft was carried by a balloon and released demonstrating the feasibility of thus expanding the range of the aircraft for exfiltration work. A small portable hydrogen generator has been the object of a considerable Research and Development effort and a full scale prototype has been successfully demonstrated. This generator equipment weighing approximately 250 pounds will replace approximately 3125 pounds of high pressure gas cylinders and makes exfiltration by balloon possible. The Hot Air balloon is in the prototype stage and it also eliminates the need for heavy inflation equipment and is directed towards the requirements of an exfiltration vehicle. A silent diffuser has been made that quiets the high frequency "scream" associated with the escape of high pressure gas through the inflation systems.

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The success of these efforts regretably, cannot be measured directly by an increase in scope of balloon operations but it can be stated that the potential for expanded operations is greater.

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2. Leafleting by balloon has been supported by R&D efforts that have been primarily directed towards increasing the efficiency of this operation and providing a clearer understanding of what can be expected in terms of accuracy of targeting and equipment performance. The leaflet balloon idea expanded rapidly from a toy balloon concept to a major undertaking involving tons of leaflets per month and thousands and thousands of meteorological balloons adapted as leaflet carriers. It was the basic premise of the R&D work that the mechanics of the system had not in any way kept pace with the expanded scope of operations. This was true from the standpoint of balloon performance, balloon inflation equipment, associated time delay and ballast equipment. R&D efforts were directed toward improving the whole gamut of operational equipment including the knowledge of leaflet behavior after release. This work resulted in a new time delay and ballast system, a larger instrumented, long-range leaflet carrying balloon, a new set of tables for leaflet aerodynamics, and special ground inflation equipment for support of a specific leafleting operation. A Mobile hydrogen generating plant has been test proven for support of this work if needed and aid was given in the production of a film to counteract Soviet propaganda on the alleged hazard to air safety of balloons.

To aid in the utilization of new equipment a project engineer of TSS/ED journeyed to operational sites [redacted] for the express purpose of demonstrating new equipment to the user and to gain first hand knowledge of operational problems. After incorporating a new external leaflet loading device into their operational system that utilizes neoprene meteorological balloons operators [redacted] reported that the percentage of pre-bursts of the balloon had been reduced from 22.5% to 1.5%.

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